Report of the NRCB/CEAA Joint Review Panel
Application #9801 – Alberta Infrastructure
December 2000

Highwood Storage and Diversion Plan
Review of Progress Toward
Meeting Board Order 9601-1

NRCB
Natural Resources
Conservation Board

Canadian Environmental Assessment Agency
Agence canadienne d'évaluation environnementale

Alberta
GOVERNMENT OF ALBERTA

Canada

HIGHWOOD STORAGE AND DIVERSION PLAN
REVIEW OF PROGRESS TOWARD MEETING BOARD ORDER 9601-1

NRCB Application #9801

December 2000

Published by:

NRCB/CEAA Joint Review Panel
4th Floor, Sterling Place
9940 - 106 Street
Edmonton, Alberta
T5K 2N2

Telephone: (780) 422-1977
Facsimile: (780) 427-0607

1 Introduction and Background

In 1998, the Little Bow Project/Highwood Diversion Plan Review resulted in provincial approvals for the Little Bow River Reservoir, the Highwood River diversion works and a canal to the Little Bow River, and a diversion of water from Mosquito Creek to Clear Lake. Two other components of the application by Alberta Infrastructure, the potential expansion of offstream storage at Women's Coulee (Figure 1) and the Highwood Diversion Plan, were also considered in that review. However, in Board Order 9601-1 (the Board Order), the decision on offstream storage and the diversion plan during the low flow period was deferred in order to obtain further information. A Joint Review Panel (the Panel) has subsequently been established under the *Natural Resources Conservation Board Act (NRCBA)* and the *Canadian Environmental Assessment Act* (*CEAA*) to consider those two matters, including new information.

The Board Order also summarized the additional information required to address the outstanding technical, social, economic and environmental issues related to the storage proposal and to develop an operating plan for low flow periods in the Highwood basin. A reassessment of the instream flow needs (IFN) for the Highwood River was one requirement of the Board Order.

A second requirement was for Alberta Infrastructure to develop additional information on the feasibility of flow augmentation in the Highwood River through offstream storage. This was to include a more detailed assessment of the Women's Coulee site, as well as a comparative analysis of this site to alternative storage sites including Tongue Creek and Stimson Creek (see Figure 1), among others.

The third requirement was a revised diversion plan that addressed instream and consumptive needs during low flow periods.

The Board Order required that Alberta Infrastructure report back to the Panel with the specified information within 12 months, and on 19 April 2000, the Panel held a public meeting to consider a request to extend this time period and to consider other issues raised by participants at the meeting. In its subsequent report (June 2000), the Panel agreed to Alberta Infrastructure's request for an extension to March 2002.

The Panel also agreed with a number of parties, including the Government of Alberta, that the examination of storage sites would be best conducted within the context of Phase 1 of the Highwood Management Plan (HMP) being proposed by Alberta Environment, provided this was done in a timely way. The Panel also accepted that Alberta Infrastructure's role in the Highwood planning process would be to provide technical reviews and information on storage options. Alberta Infrastructure would also be responsible for applying to the Panel for approval of offstream storage, if the results of the HMP indicate that storage is the necessary or preferred option, and for approval of a revised diversion plan.

In its June 2000 report, the Panel committed to hold additional meetings if these would be of use to facilitate the development of Phase 1 of the HMP and the feasibility studies related to potential sites for offstream storage. The first of these meetings was scheduled for November 2000.

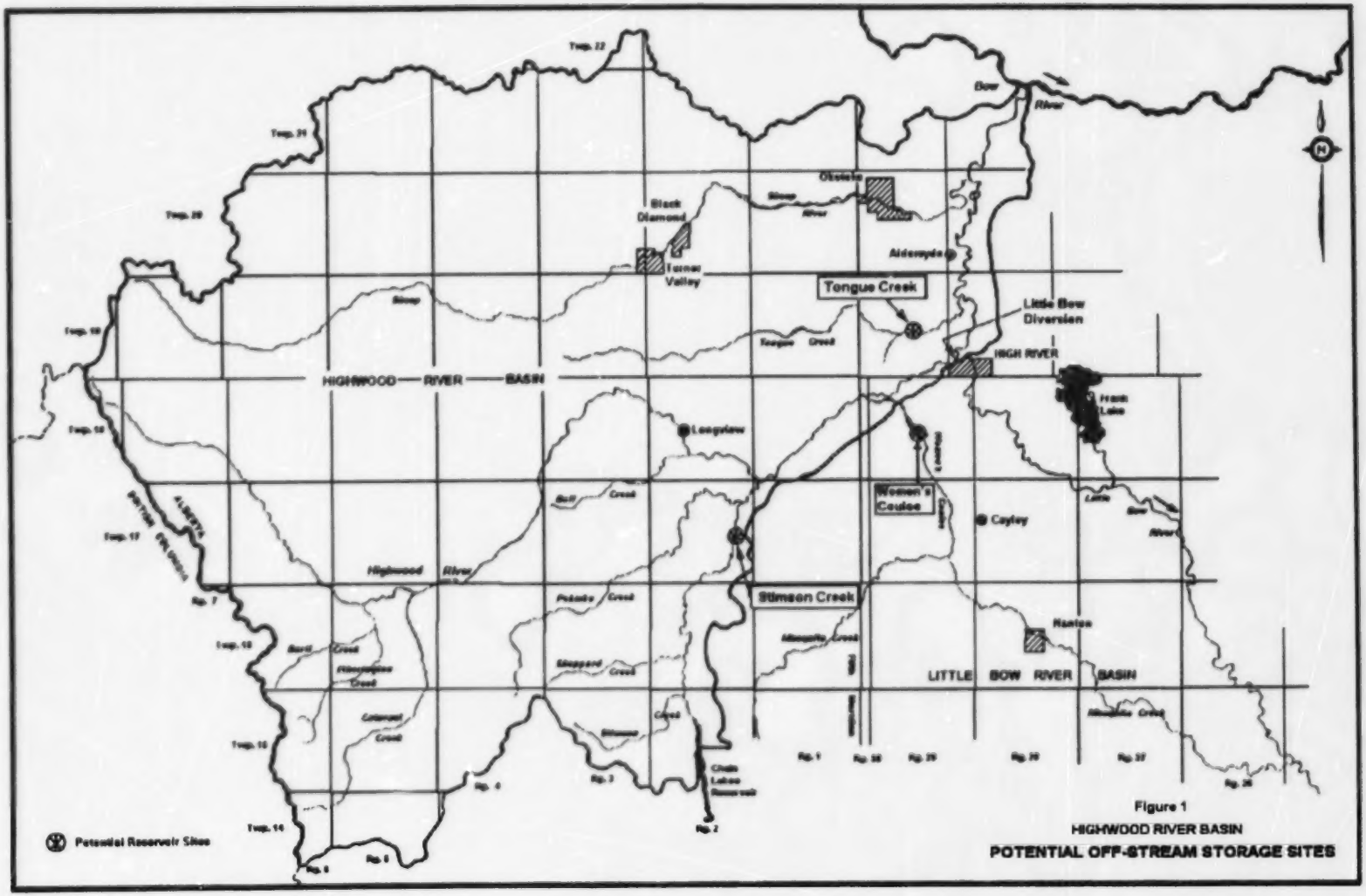


Figure 1
HIGHWOOD RIVER BASIN
POTENTIAL OFF-STREAM STORAGE SITES

This meeting was held in High River, Alberta, on November 22, 2000. The purpose of the meeting was to update the Panel on Alberta Environment's progress on Phase 1 of the HMP and on Alberta Infrastructure's efforts to assess the environmental, social and economic impacts of potential offstream storage sites in the Highwood basin. Both departments were asked to outline their proposed work schedules and to report on progress to date. The meeting also provided an opportunity for interested parties to comment on these activities.

This report provides a summary of the results of that meeting.

2 Views of the Parties

Numerous parties made oral and/or written presentations to the Panel. Their respective views are described and summarized below.

2.1 Alberta Environment

Alberta Environment presented an update of its activities and progress to date on the HMP. It stated that it has proposed conducting the HMP in two phases, with Phase 1 concentrating on those aspects of the plan that are directly relevant to the Little Bow Project/Highwood Diversion Plan, including the development of a diversion plan and, if required, an assessment of storage options. Phase 2 would deal with all remaining tasks. Alberta Environment reported that it has developed and distributed to the public terms of reference for the HMP that details the expected products and the issues to be addressed. The department noted that it is prepared to consider changes based on comments from the public and particularly the Public Advisory Committee (PAC) that is to be established.

The department stated that it is in the process of establishing the PAC and that, once formed, the PAC will be asked to make recommendations on the development of the HMP. Draft terms of reference for the PAC have been prepared and Alberta Environment has hired Praxis, Inc. (Praxis) to serve as an independent facilitator to assist in the initial formation of the PAC. Praxis is currently consulting with residents of the Highwood basin to solicit their views on how the PAC should be structured and how it should function.

The department stated that it did not intend to be a member of the PAC, but it and Alberta Infrastructure would serve as technical advisors. Both departments would be responsible for ensuring that the PAC has sufficient information to be able to make informed recommendations on storage and non-storage options within the context of the HMP.

Alberta Environment also committed to reimburse the expenses of selected PAC members who are not paid employees of an interest group or organization that they represent and whose organization does not have adequate funds to support their participation. The department also committed to ensuring that all interested parties are kept fully informed regarding the HMP and related studies.

Praxis provided an overview of its efforts to involve the public in developing the PAC and summarized the steps it has taken to notify the public about the PAC and to solicit input on its structure and function. These steps include mail-outs to previous participants in the review of

the Little Bow Project/Highwood Diversion Plan and to approximately 18,000 households in the area, the placing of posters at strategic locations in the region, and advertisements in local papers.

Praxis reported that it is currently holding meetings with interest groups, stakeholder groups, landowners and individuals who have registered to be a part of the PAC process. The goal of these meetings is to gather information from potential participants on how the PAC should be formed, and how it will function in the future. Based on the input from these meetings, Praxis will develop a proposal that outlines options for PAC membership, and how it could work over the next several years. This proposal will be circulated to all registered participants for their review and feedback. Praxis indicated that it will also be requesting that registered participants begin the process to select their representative for the PAC and possible alternates.

Praxis anticipated that the PAC will be formed by January 2001, and that two or three organizational meetings will be necessary to establish codes of practices, work guidelines and to finalize the PAC's terms of reference. After that time, the PAC will be an independent body that will be allowed to choose its own facilitator, to design its own process for consultation (subject to budget limitations), and to determine when and where to hold its meetings.

Alberta Environment stated that one of the first tasks to be addressed by the PAC would be to identify and evaluate non-storage options for the HMP. It indicated that the voluntary buy-back of water licences is one of the non-storage options to be considered but that expropriation of water licences in good standing is inconsistent with the South Saskatchewan Water Management Policy.

The department suggested a three-step process might be appropriate for reviewing non-storage options. This would consist of identifying feasible options, compiling data on the merits of each option in the context of the Highwood basin, and then evaluating these non-storage options in conjunction with the storage options to determine which should be pursued. To assist the PAC, the department stated that it is preparing a background report on available non-storage options, including basic cost estimates and an assessment of each option's capability to either reduce or manage water demands. This report is to be provided to the PAC in January 2001.

Alberta Environment reported that another task to be undertaken by the PAC will be to review the Instream Flow Needs (IFN) on the Highwood River and the minimum flows for the Little Bow River and Mosquito Creek. Alberta Environment noted that, although the initial diversion plan for Mosquito Creek was based on 10 cubic feet per second (cfs), some groups had suggested flows in the range of 20 to 30 cfs, and so this issue also needs to be addressed by the PAC.

In addition to discussing the role of the PAC, Alberta Environment also reported on its progress on addressing water quality issues in Frank Lake and Mosquito Creek. It stated that the preliminary investigations carried out by the Steering Committee for the Frank Lake Water Quality Mitigation Plan indicated that the background levels of phosphorus in Frank Lake might be higher than originally calculated and this will impact the trophic status of the Little Bow River Reservoir. The official report of the Frank Lake Steering Committee will be completed in the near future and released to the public. As for water quality in Mosquito Creek, Alberta

Environment reported that upgrades to the Town of Nanton's wastewater treatment facility to remove phosphorus have been initiated. Completion of this project is expected in 2004. The Town of Nanton will also be monitoring its storm water discharges to determine any potential impacts on Mosquito Creek from these sources.

The department also noted that it is continuing to work on reviewing and revising the temperature analysis for the Highwood River. In addition, it has prepared two reports of potential future demands for water in the Highwood basin and a report on water quality for 1999 on the Upper Little Bow River and Mosquito Creek. All of these reports are now available.

Alberta Environment concluded that it believed that it would still be able to have Phase 1 of the HMP completed by March 2002. This was based on the assumption that there is adequate budget and the PAC is able to quickly review and assess the extensive information that will be provided to it. The department indicated that it would be in a better position to report on scheduling once budgets had been set (April 2001) and the PAC had been operating for several months.

In response to various questions from parties at the meeting, both Alberta Environment and Praxis indicated that the draft terms of reference had been circulated as a starting point for public discussion, and that they were open to suggestions as to how the PAC and the HMP could be improved. They stated that they were prepared to consider suggestions concerning remuneration for PAC members for more than just expenses, technical support for the PAC, how the PAC chair should be selected, methods for distributing information to the public, the ability to acquire outside technical advice, and the process for finalizing the terms of reference.

2.2 Alberta Infrastructure

Alberta Infrastructure updated the Panel on its role in the HMP process and its activities related to potential storage options and sites. Alberta Infrastructure believed that the PAC will play a significant role in resolving water management issues in the area and that, once it is acquainted with the water management issues in the basin, the PAC will acknowledge that storage does have a place in the HMP. Alberta Infrastructure indicated that it will act as an information resource to the PAC, but will also be seeking the guidance of the PAC and its facilitator in regard to more effectively releasing and distributing information to the public. In the interim, it proposed that one plausible method would be to place materials in the High River library.

Alberta Infrastructure reported that it has been undertaking work to assess the three potential offstream storage sites, but noted that its activities have been hampered somewhat because some landowners are not allowing its consultants access to private lands for the purposes of conducting the necessary geotechnical and other studies. To date, the department has completed topographical mapping of the three sites, and the environmental site assessment study is nearing completion. This study will describe the extent and nature of impacts for each of the sites in the areas of: soil, terrain, groundwater, vegetation, wildlife, transportation, land use, historical and archaeological resources. This report is expected to be available for review by the PAC by Spring 2001.

Alberta Infrastructure reported that it had contacted representatives of all the Treaty 7 First Nations and conducted visits to the three sites with elders and other representatives. The water quality model for the potential Women's Coulee Reservoir site has been completed but work on the corresponding models for reservoirs at the Stimson and Tongue creek sites is continuing. Baseline field surveys to describe fish habitat and population characteristics in Stimson and Tongue creeks were done in the summer of 2000. And, in response to public concerns about aesthetics, Alberta Infrastructure has undertaken a visual impact assessment of the three proposed storage sites based on visual simulations of how these projects would appear from different locations throughout the study area

In terms of the assessment of the IFN, Alberta Infrastructure reported that the technical working group had completed a draft report in May 2000. However, this group had decided to undertake a broader review of IFN based on the entire spring and summer flow season and what effects these higher flows in particular may have on the natural channel structure of the Highwood River. A study to assess the flow regime required to maintain the natural channel structure in the Highwood River is currently underway and Alberta Infrastructure expected that the study will be completed in mid 2001.

Alberta Infrastructure presented a schedule that it believed would allow it to complete its comparative site assessments by March 2002. It emphasized that meeting this schedule is contingent on commencing fieldwork in early Spring 2001. Alberta Infrastructure cautioned that this would depend on the ability of the PAC to recognize that offstream storage could have a role in the HMP. With the PAC's acknowledgement of the potential need for offstream storage, Alberta Infrastructure expects to be able to gain access to private lands for further studies. Key work remaining included an assessment of the geotechnical characteristics of each offstream storage site. This information is needed to develop a more complete engineering design for the dams and reservoirs that, in turn, will support a more detailed assessment of costs and environmental impacts. Once the studies have been completed, Alberta Infrastructure stated that it would again rely on the PAC to review the information and develop a rating system for the potential storage sites in a timely manner. Alberta Infrastructure suggested that the Panel might consider holding another public meeting in June to discuss its progress in meeting the March 2002 deadline.

As requested in the Panel's June 2000 report, Alberta Infrastructure offered its comments on a development moratorium for the three potential offstream storage sites. It did not believe that, under the *Public Works Act*, it has the authority to impose any restriction on development at this early stage in project planning. Alberta Infrastructure suggested that, at this stage in the planning process, the municipalities might have a greater authority under the *Municipal Government Act* to place a moratorium on development.

In response to questions, Alberta Infrastructure noted that the absence of an approved diversion plan would not prevent starting operation of the Little Bow River Reservoir in 2003. It noted that, while the previous Panel did not approve the proposed diversion plan for the low flow periods of late July and August, diversions from the Highwood River during high flow periods could be done in a manner consistent with the existing operating guidelines.

2.3 Upper Little Bow Basin Water Users Association

Ms. Shirley Pickering represented the Upper Little Bow Basin Water Users Association (ULBBWUA). The ULBBWUA questioned how Alberta Infrastructure's work on storage options would be incorporated into the HMP and sought confirmation that the HMP would employ an independent facilitator and would involve both Alberta Environment and Alberta Infrastructure in a resource capacity. The ULBBWUA raised questions about the PAC's ability to question all technical information brought before it, specifically work prepared for Alberta Infrastructure, and requested that the PAC receive outside technical assistance to review this information. On the question of Alberta Infrastructure gaining access to private lands for additional study, the association questioned whether this would be coordinated through the PAC or left up to the individual landowner. The ULBBWUA also confirmed Alberta Environment's comments related to the water quality problems associated with Frank Lake.

2.4 Lower Mosquito Creek Water Users Association

The Lower Mosquito Creek Water Users Association (LMCWUA), as represented by Mr. Gerald Lyon, presented a detailed critique of the terms of reference for both the PAC and the HMP. With respect to the PAC, the LMCWUA suggested the following changes in the draft terms of reference:

- the PAC's mandate should be more than advisory; its advice should be implemented in the development of the HMP;
- the PAC should elect its own chairman;
- the PAC should have independent secretarial and technical staff for support and to assist in assessing and interpreting information provided by Alberta Environment and Alberta Infrastructure;
- meeting minutes should be taken and approved;
- PAC members should solicit the views of the people they represent and report back to those groups to ensure that they remain well informed about the PAC process; and,
- the independent facilitator should not be paid directly by Alberta Environment or Alberta Infrastructure in order to eliminate any appearance of bias.

The LMCWUA also noted that participation in the PAC would represent a significant commitment from the public members and recommended that the members of the PAC receive some remuneration for their participation, either as an honorarium or fees based on meeting and travel time. The association believed that Alberta Infrastructure should provide Praxis with the funds to pay these costs directly to PAC members.

For the terms of reference for the HMP, the LMCWUA offered the following suggestions and clarifications:

- the assessment of future water demand in the basin should not be considered complete because the 1999 report is inaccurate and out-of-date;
- the reasons why the government would not consider expropriation of water rights need to be explained;
- an IFN and related fisheries studies also need to be done for Mosquito Creek and the Little Bow River;

- flood control for Mosquito Creek should not be considered because this is a natural occurrence;
- water requirements for maintaining riparian health should be established;
- the assessment of non-point source pollutants should not be limited to agricultural sources;
- the feasibility of re-establishing fish populations in Mosquito Creek needs to be assessed;
- water licences should be transferable among users along the same creek and the Government should not be able to monopolize water that has already been allocated; and,
- there needs to be more recognition that water management plans need to be flexible because water management is dynamic.

The LMCWUA was concerned that the schedules offered by both Alberta Infrastructure and Alberta Environment were unrealistic, with the result that the March 2002 date established by the Panel will not be met. This concern focused on the assumption in the schedule that PAC support for storage and landowner acceptance of the need for field studies can be accomplished by March 2001.

The LMCWUA also recommended that the intermediate and long-terms costs of implementing the HMP be incorporated into the budget for the Little Bow Project/Highwood Diversion Plan. It suggested that this would be consistent with the Joint Review Panel's 1998 decision which specifically recommended the costs of implementing a plan for resolving issues related to livestock access to water bodies and resulting disturbances to riparian habitats and water quality be considered as costs of the project. The LMCWUA believed that Alberta Infrastructure ought to be paying the costs of the Cows and Fish project currently being implemented to rehabilitate the riverine environment. It believed this is warranted because Alberta Infrastructure had set a precedent in choosing to fund 90 per cent of the costs of upgrading the Nanton wastewater treatment plant.

The LMCWUA also provided evidence to suggest that its efforts toward having the Nanton wastewater treatment upgraded by 2003 will have a substantial positive impact on reducing phosphorous loading in Mosquito Creek. The association referred to the recently completed report on water quality sampling in Mosquito Creek in 1999 that concluded that enhanced phosphorus removal at the plant would reduce downstream concentrations in the creek by 65 per cent. The LMCWUA stated that, as a result of its involvement, it was able to accelerate upgrading of the treatment plant through mediation conducted through an Environmental Appeal Board process. The Association also suggested that Alberta Infrastructure ought to reimburse it for its costs in this action since the results are of direct benefit to the Little Bow Project.

2.5 Baker Creek Group

Mr. Stephen Evans presented the views of the Baker Creek Group. The Baker Creek Group sought confirmation that Phase 1 of the HMP would examine nonstructural options for addressing water demands and that this phase would culminate with a decision on storage options by March 2002. The Baker Creek Group made the point that, although some storage options for the basin have been studied in the past, there has not yet been a definitive study that concludes that storage is actually needed. And, despite the 1998 conclusions of the Joint Review Panel for the Little Bow Project/Highwood Diversion Plan that additional storage is required, the

Group believed that it should be up to the PAC to decide whether offstream storage is the best option for addressing the water demands of the basin. The Baker Creek Group requested that the HMP give full consideration of all potential nonstructural options, including water reuse from the Town of High River and Cargill through extensive recycling and additional treatment.

The Baker Creek Group also questioned what model of public participation is to be used for the HMP. The Group concluded that models that feature public information sessions or seeking public input on selected issues would not be appropriate, and recommended that the PAC actually be given responsibility for making some decisions. For example, the Baker Creek Group suggested that the PAC could be asked to provide input to the agency responsible for doing environmental assessment "with respect to the identification and the methodology of environmental and social impact studies, either present or future, and to elicit feedback". In the Group's opinion, such an approach would help ensure a fair and open assessment of storage options. The Baker Creek Group also argued that the range of public issues currently being considered by Alberta Infrastructure is incomplete, and proposed that this task could become the responsibility of the PAC.

The Baker Creek Group observed that some important water users, including the communities of Vulcan, Champion and Carmangay, were not in attendance at the meeting. As the availability of water for these communities could be affected by the future diversion plan, he noted that their interests should be represented.

2.6 Stimson Creek Conservation Association

Mr. Chris Mills represented the Stimson Creek Conservation Association (SCCA). The SCCA stated that its members are reluctant to get involved in a PAC if the committee's recommendations are not going to be implemented. The Association suggested that the Panel should also have a role in ensuring that PAC's recommendations are taken into consideration when it reviews the eventual applications from Alberta Infrastructure.

The SCCA identified several factors that may limit the eventual success of the PAC. The Association was concerned that the PAC may not be able to function because of an insufficient budget. In this regard, the Association noted that considerable resources have already been spent investigating the various storage options, but additional money will have to be committed to study non-structural alternatives if the two different approaches are to be assessed properly. The SCCA was also concerned about remuneration for PAC members. It noted that these people will be expected to commit a considerable amount of their time to attend meetings and study information and, if the government is really committed to this process, PAC members should be remunerated over and above their expenses.

The SCCA also expressed some uncertainty over the relationship between the PAC and Alberta Infrastructure. The Association noted that Alberta Infrastructure has indicated it expects the PAC to be able to facilitate its field research investigations on private lands by March 2001, but it warned that the PAC might not be able to proceed this quickly.

2.7 Landowners on the Diversion Canal to Women's Coulee

Mr. Wayne Corner stated that he represented a number of landowners who live along the existing diversion canal into the reservoir at Women's Coulee. He posed numerous questions to Alberta Environment about the role and constitution of the PAC, and whether it would report back to Alberta Environment. He noted that, although Alberta Environment and Alberta Infrastructure submitted schedules for future work, there is as yet no integrated master schedule. In his opinion, the lack of an integrated schedule could lead to future delays. To prevent this problem and increase accountability, Mr. Corner suggested that the PAC, Alberta Environment and Alberta Infrastructure ought to be submitting monthly progress reports to the Panel, rather than every six months, and that these reports could be posted on a website.

Mr. Corner indicated that they believed that a PAC is a reasonable way of trying to resolve water management issues in the basin, but were skeptical as to whether this process will work. He expressed concern that, while there are many things to be done, there is not much time, Praxis has other work commitments, and there may be an insufficient budget.

2.8 Tongue Creek Steering Committee

On behalf of the Tongue Creek Steering Committee (TCSC), Ms. Sharon Plett sought clarification from Praxis concerning the process being used to establish the PAC. The TCSC was particularly interested in knowing who will approve the terms of reference for the PAC and when this is likely to occur. The Committee is concerned about the timing because it would like to have the most up-to-date information by the time the PAC is established, but had been told by Alberta Infrastructure that new information will be distributed through the PAC. The TCSC also sought confirmation that the *Public Works Act* is not an appropriate mechanism for placing a moratorium on development at the proposed storage sites at this point in the planning process.

2.9 Women's Coulee

Ms. Dawn Giles represented the Women's Coulee group and posed a number of questions to Alberta Environment concerning the operation of the PAC and its reporting responsibilities. She sought and received confirmation that the PAC report would be submitted to Alberta Environment, which would then decide whether to accept the PAC recommendations. She also questioned whether the Panel would get to see the actual recommendations from the PAC and whether a representative from the PAC would be able to make a presentation at future Panel hearings.

2.10 Ms. Lisa Murphy

Ms. Murphy stated that she lives adjacent to the Women's Coulee site. She raised several questions about water management priorities in the Bow River basin and the need for water conservation. She is concerned that she may be losing her backyard to a water storage project when, at the same time, she believes the government is wasting water by allocating large quantities to new residential subdivisions, golf courses and water ski schools. She questioned whether irrigators are required to comply with any water conservation regulations and suggested

that the basin plan consider opportunities for conservation before focusing on the construction of more water management structures.

2.11 Fisheries Coalition

The Fisheries Coalition stated that it consists of Trout Unlimited Canada, Trout Unlimited Bow River Chapter, Bow River Angling Outfitters Association, Don Pike operating as the Bow River Company, Bow River Troutfitters Ltd., Country Pleasures, Westwinds Fly Shop, Hanson's Fishing Outfitters Inc., and the "Must Be Nice" Drift Boat Company. Mr. Alan Harvie represented the Fisheries Coalition and raised a number of issues related to the timing and sequencing of the HMP and the PAC.

The Fisheries Coalition questioned whether it will be possible for the PAC to assess options for storage by March 2001 when the water demands for IFN will not be known until July 2001, and noted that Alberta Infrastructure acknowledged that the need and size of offstream storage cannot be established until the IFN has been defined. The Coalition also questioned whether the Diversion Plan will be ready by the time the Little Bow River dam is completed in 2003, especially if the PAC gets bogged down with technical details. The Coalition expressed concern that this could lead to additional requests to extend the March 2002 deadline, resulting in pressures to operate the dam in the absence of an approved operating plan. The Fisheries Coalition also suggested that the PAC should not be limited in the range of non-storage options it could consider. It proposed that the PAC should decide whether expropriation of licences would be an effective alternative to storage and that the provincial government should then determine whether such an option is feasible.

The Fisheries Coalition posed several questions about the progress of the IFN, which was to have been available in June 2000 but has been delayed to the end of July 2001. The Coalition argued that many of the key components of the IFN have already been established and that these could be presented to the PAC now because this information is required to identify the amount of storage required. It also suggested that a public review of the IFN before being finalized is unnecessary, because the IFN is supposed to be a scientific review. Furthermore, the Fisheries Coalition noted that no work was being done on the winter IFN, due to a lack of funds, and that old methods were being employed to do the IFN work. The Coalition queried the status of the temperature studies for the Highwood River and whether it might have access to the monitoring data so that it could conduct its own analysis. The Coalition also asked why it is taking so long to release peer-reviewed fisheries studies that were completed in 1995 and 1996.

The Fisheries Coalition stated that it would try to ensure the success of the PAC. However, if a member of the Coalition is invited to participate on the PAC, it will be hard for them to argue why more water is required for fisheries without the benefit of the scientific data on IFN.

2.12 Town of High River

Mr. Tom Bragg, a councillor with the Town of High River, provided the Panel with two letters that outlined the Town's concerns over the development of storage at the Tongue Creek and Women's Coulee sites. The Town indicated that it is concerned that development of either of these sites will significantly disrupt traffic use of major east-west secondary roads, resulting in a

long-term negative impact on retail and service businesses in the town. It requested that these impacts be quantified as part of the economic assessment of the three storage sites.

The Town also indicated that it is not able to protect the two possible alignments for a return canal from the Tongue Creek reservoir to the Highwood River because detailed land use plans for this area have already been approved and this development is currently occurring. The Council felt that it would be unfair to interrupt this development. The Town is prepared, however, to entertain design options for an underground pipeline that may tie into its surface stormwater lake system so long as this does not interfere with the operation of its underground utilities and this decision is made fairly soon.

2.13 The M.D. of Foothills

Mr. Harry Riva Cambrin is the manager for the M.D. of Foothills; all three proposed sites for offstream storage are located in the M.D. He reported that, although the M.D. has a municipal development plan and a land use bylaw, these are not practical mechanisms for implementing a moratorium on development in the vicinity of the storage sites. He stated that anyone who owns private land has the ability to build a home without need of a development permit from the M.D. In the case of new subdivisions, he noted that Alberta Environment could appeal any approvals issued for development within 800 metres of a creek. In his opinion, the Council would not legally be able to place any restrictions on development until the provincial government has made a decision to build offstream storage at a particular site. Mr. Riva Cambrin suggested that, in the case of highway developments, such as Deerfoot Trail, Alberta Infrastructure has protected its ability to develop by purchasing the necessary properties in advance, with the price being based on the development potential of those sites.

In terms of the PAC, Mr. Riva Cambrin indicated that the M.D. would like to be a member, but wondered whether M.D. staff would be allowed to attend and observe PAC meetings. He also indicated that the PAC would have no status under the *Municipal Government Act* and that this would limit its ability to have input on development proposals in the M.D.

2.14 Town of Nanton

Mr. Johnson is a councillor for the Town of Nanton, which is located on Mosquito Creek and has concerns about the quantity and quality of water in the creek. The Town partially relies on Mosquito Creek for municipal water supply, especially during dry years, and supports having flows of 20 to 30 cfs. He reported that the Town has been directly involved with the Little Bow project for a number of years and has benefited from the efforts of Alberta Environment and Alberta Infrastructure. Mr. Johnson also noted that water conservation represents an alternative to storage and that the Town of Nanton is taking some preliminary steps to reduce its water use through dry climate landscaping.

2.15 M.D. of Ranchlands

Mr. Harvey Gardner spoke on behalf of the Municipal District of Ranchlands, and expressed his hope that the PAC would be able to produce a report that is more acceptable to government than

has resulted from previous public advisory committees struck to address other issues. He indicated that researchers conducting any fieldwork in the area ought to inform landowners about any work to be done on their properties and to seek informed consent from landowners before commencing these activities. Mr. Gardner also sought and received clarification that the Crown would acquire any lands needed for development of offstream storage through voluntary purchase or expropriation.

2.16 Mr. Gerald Lyon

Mr. Lyon owns property that would be directly affected by the Little Bow River Reservoir. He expressed concern about the recent evidence from Alberta Environment that phosphorus levels flowing into the Little Bow River from Frank Lake would be higher than previously anticipated and suggested that the construction of the Little Bow Project receive a second look. He also proposed that the capital and operation costs of providing more secure water supplies for the villages of Champion and Carmangay, several water cooperatives, and Hutterite colonies be funded partly from the capital budget for the Little Bow Project as this would ensure that the project provides economic and social benefits for these communities.

2.17 Mr. Phil Bice

Mr. Bice noted that he is a landowner in the Tongue Creek area. He indicated that the regional landfill site is located near the proposed water reservoir site on Tongue Creek. He is concerned that the landfill site would represent a risk to water quality in the reservoir if this option were chosen, especially during spring run-off.

2.18 Lower Little Bow Water Users Association

Mr. Gary Flitton, a member of the Lower Little Bow Water Users Association, offered some advice to the future members of the Highwood PAC, based on his experience with the advisory committees for the Little Bow Project. He stressed that it will be important to the PAC to focus on the common goals for the community and to use common sense. He warned against getting caught up in legal and technical details. He noted that an important benefit of forming a PAC is that it provides an opportunity to sensitize participants to the concerns of others. For the PAC to be successful, Mr. Flitton believes that participants must have an open mind and be willing to give and take in reaching a consensus, and that the process requires formal representation with some authority to make recommendations. He also noted that, before a PAC can address the issue of storage options, it would have to come to consensus on whether there is a water management problem in the Highwood basin.

From his perspective, Mr. Flitton suggested that the goal of the PAC is to try to develop a management plan that takes withdrawals from the Highwood River back to a pre mid-1970s era when there were few conflicts between the Highwood and Little Bow basins. He suggested that returning the Highwood to "natural" conditions was impractical and unachievable because the river has been actively managed for nearly 100 years. He also made the observation that, with diversions from the Highwood having occurred for this long, the Little Bow basin has an historic right to Highwood River water. He observed that common sense indicates that these historic flows are on the order of 30 to 40 cfs for the Little Bow River and from 20 to maybe 30 cfs for Mosquito Creek, even though these numbers may not be supported by technical data.

2.19 Lower Highwood Water Users' Group

Mr. Gerald Porter, a member of the Lower Highwood Water Users' Group, was supportive of the development of a water management plan for the basin. He noted that the demands for water in the basin and a water management plan will help provide a means of accommodating future economic growth in the basin. In his view, Mr. Porter believes that storage is a viable option and he suspects that further studies will not find a viable alternative for addressing future water demands.

Mr. Porter indicated that he would be reluctant to participate on another public advisory committee, but he is prepared to do so in order to find a win/win solution for the Highwood. Such a solution has been the goal of the Lower Highwood Water Users' Groups from the beginning. He hoped that a quick solution can be reached but this will depend on participants in the PAC taking a reasonable and responsible approach.

3 Views of the Panel

Much of the evidence presented at the meeting related to the HMP and the formation of a PAC. These are items over which the Panel has no direct jurisdiction, although the nature and timing of Alberta Infrastructure's eventual application to the Panel for a diversion plan with or without storage will be directly affected by the success and outcomes of the HMP. Consequently the Panel believes that it should identify and make recommendations that may be of assistance to the HMP in meeting the timetable set out in the Panel's June 2000 report.

3.1 Highwood Management Plan

3.1.1 Status

In its June 2000 report, the Panel outlined its views concerning a process and timeline for preparing the first phase of a HMP that could be used to resolve the outstanding issues associated with offstream water storage and a diversion plan for the Highwood basin. Based on the evidence presented by Alberta Environment and Alberta Infrastructure, it appears that the departments have developed a strategy for completing Phase 1 of the HMP in a manner that also effectively reflects the Panel's views. According to the evidence, Phase 1 will include an assessment of non-storage alternatives and an assessment of the three proposed offstream storage sites. In addition, the Panel heard that the HMP will involve a PAC that will have a significant voice in determining its terms of reference and how it is to operate. Furthermore, the Panel heard that Alberta Environment and Alberta Infrastructure will be assisting the PAC in a technical capacity.

In general, the Panel believes that Alberta Environment has proposed an effective process for capturing public views in the development of Phase 1 of the HMP. This process is also consistent with the recommendations made in Board Order 9601-1 and the views of the Panel in its June 2000 report.

3.1.2 Schedule

Alberta Environment and Alberta Infrastructure each provided schedules showing some of the key tasks that will need to be completed in order to comply with the previously agreed deadline of March 2002. Both departments noted, however, that meeting this deadline is contingent upon the PAC being established in January 2001 and being able to start making recommendations by March 2001. In particular, Alberta Infrastructure is relying on the PAC's prompt acceptance of the need to consider offstream storage to facilitate landowners allowing fieldwork to occur on their lands during the critical spring and summer periods. Some parties questioned whether this schedule was optimistic, and suggested that a harmonized schedule be produced to show how the activities of Alberta Environment and Alberta Infrastructure would be coordinated.

The Panel is also concerned as to whether Phase 1 of the Highwood Management Plan will be completed within the March 2002 time frame. While the Panel appreciates the importance of not rushing a planning process that could affect many people in the basin, it also recognizes the negative impacts that delays may have upon people with property interests in the vicinity of Women's Coulee, Tongue Creek and Stimson Creek. The March 2002 deadline was selected specifically to bring closure to the issue of offstream storage as soon as possible, and the Panel will offer several recommendations to help ensure that this deadline can be achieved.

In particular the Panel believes that, if Phase 1 of the Highwood planning process indicates storage to be necessary or advisable, the potential storage sites can and should be analyzed and the choices narrowed down to the best option as soon as possible during 2001. This will help to give some certainty to residents well in advance of March 2002. The Panel does not believe that the process of selecting the best potential storage sites should take until March 2002.

The Panel strongly supports the adoption of a single, coordinated schedule by Alberta Environment and Alberta Infrastructure. The Panel believes that this will assist the departments, the PAC and the public to better understand the sequence and timing of the various steps required to complete Phase 1 of the HMP and file an application for a revised diversion plan, with or without storage. At the November 22 meeting the Panel requested that the departments prepare such a schedule, and their response is provided as Appendix A of this report.

Furthermore, to ensure that the HMP and associated work are being completed according to schedule, the Panel requests that Alberta Environment and Alberta Infrastructure each plan to provide brief monthly progress reports. These progress reports would be posted on the NRCB website (http://www.nrcb.gov.ab.ca), until such time as either department establishes its own project website. The Panel will monitor progress and may choose to convene additional public meetings, should a significant variance in the schedule become apparent.

3.2 Public Advisory Committee (PAC)

The Panel heard considerable evidence about the process that Alberta Environment is using to select and organize the PAC. Key features of this process include the use of an independent facilitator, allowing groups and individuals within the basin to prescribe the structure of the PAC and allowing the PAC to develop its own terms of reference and operating principles. The Panel was particularly pleased that, despite a significant change in key personnel at Alberta

Environment, the process for selecting the PAC was delayed only slightly, such that the PAC will be able to start meeting in January 2001.

While the Panel supports the development of an autonomous PAC, it has concerns about two issues that may ultimately limit the effectiveness of the PAC. These are summarized below, along with some recommendations that may help ensure that the PAC is able to conduct and complete its business in an effective and timely manner.

3.2.1 Organization

While there appears to be public support for the PAC, not all parties are equally confident that it will operate or represent their views effectively. As noted in the Panel's June 2000 report, some parties appear to remain unprepared to rely on others to represent their interests in the PAC, and this still represents a concern. In addition, some parties are wary and possibly even resentful of the amount of time and energy that may have to be expended to reach a consensus on water management issues in the Highwood Basin.

The Panel respects the magnitude of the challenge facing the PAC, but is also cognizant that the outstanding water management issues in the basin must be somehow be resolved in a timely and effective manner. The Panel urges organized groups within the basin to develop internal communication processes that will allow each group to have an effective, unified and timely voice in the PAC. While it strongly encourages parties to participate in the PAC and in the process of developing the HMP, the Panel wishes to remind basin residents that they will still be able to participate in any future hearings related to the diversion plan, with or without storage.

Therefore, parties hopefully will take some additional comfort in the knowledge that their direct participation in the PAC is not necessary to ensure that their concerns are addressed. The Panel also notes that the ongoing planning process in the basin appears to have resulted in an already knowledgeable and sophisticated public. This bodes well not only for the ultimate success of the PAC but also for the ability of its eventual members to effectively represent the views of a much broader constituency.

3.2.2 Funding

Alberta Environment has offered to reimburse selected participants of the PAC for their expenses, and to offer its advice on technical matters. However, many parties argued that, because of the potentially extensive time commitments involved in preparing for and attending meetings, PAC members ought to receive some remuneration, such as a per diem or an honorarium. They also argued that the department should provide funding for independent technical advice, where appropriate, and for the support of a secretariat. There is concern that, without sufficient commitment of funds, the PAC will prove to be ineffective and will not be able to complete all of its assigned responsibilities in a timely way.

The Panel shares these concerns. It believes that, without adequate funding, the PAC process may be prone to failure. The Panel notes that the development of basin plans is a specific provision of the *Water Act*. While its is not within the jurisdiction of the Panel to determine or comment on how Alberta Environment commits its resources to fulfill its mandate, the Panel does believe that the success of the PAC will be a critical element of the success of the HMP.

Furthermore, the HMP may serve as an excellent template for future basin planning initiatives in Alberta. Therefore, the Panel would strongly recommend that Alberta Environment make its best efforts to ensure that adequate funding to the PAC is available, including appropriate levels of remuneration for the participants.

3.3 Role of Alberta Infrastructure

The Panel heard that the work plans proposed by Alberta Infrastructure are largely dependent on the outcome of the HMP process and direction from the PAC. At the present time, Alberta Infrastructure indicated that it planned to wait until the PAC has concluded that offstream storage could be a viable option for addressing water issues in the basin before it seeks landowner permission to conduct more detailed site investigations on the three optional sites. If the PAC is able to make this decision by March 2001, Alberta Infrastructure believed that it will be able to conduct the necessary proposed investigations during the summer of 2001 and complete its analysis of site options by March 2002.

Given that the first PAC meetings are not proposed until late January, the Panel is quite concerned that landowner permissions could be delayed and could result in Alberta Infrastructure being unable to complete its detailed site investigations on schedule. The Panel believes that, if the March 2002 deadline is to be met, Alberta Infrastructure would be better served by assuming that the PAC will not automatically rule out offstream storage and there will require sufficient information to, at a minimum, conduct a "fatal flaw" analysis in order to determine if one or more sites can be ruled out of the analysis. Therefore, Alberta Infrastructure must be more proactive in anticipating what information the PAC can reasonably be expected to request and providing this information when required. The Panel believes that delaying the commencement of studies pending guidance or questions from the PAC could easily make the March 2002 deadline unattainable.

A case in point is the technical investigation of the three potential sites. The Panel believes that it would be most advantageous for Alberta Infrastructure to be able to provide the PAC with an assessment of whether one or more of the three options could be eliminated from further consideration because of significant technical or other reasons. Such an assessment should be completed as soon as possible so that Alberta Infrastructure can use its available budget much more effectively on detailed investigations of the most viable option or options in the basin. This would also reduce some of the uncertainty facing landowners and municipal governments in regard to one or more of the three sites.

In this regard, the Panel believes it would be very helpful if Alberta Infrastructure conducted a 'fatal flaw' type of analysis on the three potential storage sites prior to March 2001, based on its present level of knowledge, past information and the information it will obtain from its consultants currently conducting impact studies. Alberta Infrastructure should also continue to work with landowners in securing access to their property is case their immediate concerns have now been addressed by the implementation of the PAC. There also may be studies related to the IFN which could be useful in terms of known fish data and their bearing on water supply and demand, even if full details of river morphology impacts are not finally settled for purposes of present draft IFN reports. The Panel urges Alberta Environment to assist Alberta Infrastructure and the PAC by continuing to provide the most current information possible.

3.4 Release and Circulation of Information

At the meeting, some of the participants expressed concerns over how project-related information is being made available to basin residents. The Panel heard that CEAA has established a project registry in the High River public library, so that material already submitted is available for public review. However, the Panel also heard that there seems to be no standard protocol for ensuring that new technical information is being made available to all basin residents.

The Panel fully supports the idea that all information relevant to the Little Bow Project/Highwood Diversion Plan, the HMP and Highwood storage and diversion should be made readily available to the public. To this end, the NRCB and CEAA will meet with Alberta Environment and Alberta Infrastructure to develop a better method for disseminating information. In addition, the NRCB and CEAA will commit to making more of the material currently in the registry available electronically via the Internet. The Panel requests that Alberta Environment and Alberta Infrastructure, in their first monthly update, explain the methods they intend to use to ensure timely and comprehensive dissemination of information to the public.

3.5 Moratorium on Development

One of the issues raised at the April 2000 meeting was whether a development moratorium should be placed on lands adjacent to the three sites being investigated for offstream storage. At the hearing Alberta Infrastructure stated that, although it has the power under the *Public Works Act* to designate lands as a Public Works Development Area and to limit development in that area, this tool is not appropriate at a planning stage where one or more sites are still being investigated. The MD of Foothills indicated that it does not have the power to regulate development on private lands as long as the development is consistent with building regulations. The Town of High River noted that it has already issued detailed land use plans for the area in which return canals for a storage site at Tongue Creek could be located and, since this development is currently underway, it should not be interrupted

The Panel acknowledges the uncertainty currently faced by landowners adjacent to the three potential storage sites. Evidence before the Panel indicates that the regulatory tools available to the provincial and the municipal government were not developed to restrict development pending the outcome of planning studies. However, until such time as decisions on offstream storage are made, the Panel does expect that the municipal and provincial authorities will continue to inform existing and potential landowners that these three sites are under investigation as part of the HMP. To help reduce the uncertainty for some landowners, the Panel has asked Alberta Infrastructure to conduct a "fatal flaw" technical evaluation of the three sites to determine whether one or more of the sites can be rejected based on evident deficiencies (see Section 3.3 above).

3.6 Other Issues

At the meeting, the Lower Mosquito Creek Water Users Association sought recognition for its efforts in accelerating the upgrading of the Nanton wastewater treatment plant. The LMCWUA argues that its efforts helped resolve concerns about nutrient loading in Mosquito Creek and the future Little Bow River Reservoir. Having observed the activities of various groups in the basin in recent years, the Panel is aware of the contributions that groups like the LMCWUA have made in taking responsibility for and attempting to resolve various water management issues in the basin, and believes these efforts are very commendable. It is the Panel's hope that the HMP will eventually become a framework under which all basin residents can actively share in the stewardship of water resources.

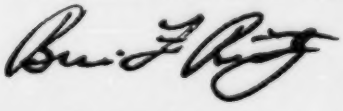
It is beyond the Panel's jurisdiction to direct any reimbursement to the LMCWUA for the costs associated with its appeal of the treatment facility licence. Because of its limited jurisdiction, the Little Bow Project/Highwood Diversion Plan Joint Review Panel was only able to recommend in its 1998 Report the establishment of initiatives to address the water quality issues associated with Frank Lake, Mosquito Creek and the Little Bow basin in general.

4 Next Steps

At the April 2000 meeting the Panel was asked to remain involved in the ongoing steps that will ultimately lead to an application being submitted by Alberta Infrastructure for either a Diversion Plan or a Diversion Plan and Storage. The Panel recognizes that the development of the HMP by an autonomous PAC is one of the key steps in this ongoing process and believes that it has no formal role in the development of the HMP. The Panel will, however, monitor the progress of the HMP to ensure that the ongoing work is done in a timely and effective way that recognizes Alberta Environment's commitment to complete Phase 1 of the HMP by March 2002. The Panel will also continue to monitor Alberta Infrastructure's progress in meeting the conditions of Board Order 9601-1. Specifically, the Panel has requested that Alberta Environment and Alberta Infrastructure submit monthly progress reports, and it will conduct additional public meetings to facilitate the work being done by Alberta Environment and Alberta Infrastructure, as required. Assuming that no significant delays in the schedule occur, the Panel anticipates holding its next public meeting in June 2001 to discuss progress on the HMP and Board Order 9601-1, and to review Alberta Infrastructure's 'fatal flaw' review of the three storage sites. The Panel believes that, at this meeting, the concerned publics would benefit from hearing a progress report directly from the PAC as well as from Alberta Infrastructure and Alberta Environment.

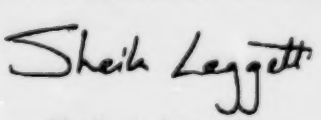
DATED at Edmonton, Alberta on 19 December 2000.

Joint Natural Resources Conservation Board/Canadian Environmental Assessment Review Panel



Brian F. Bietz
Ph.D., P.Biol.

Carolyn Dahl Rees
M.A., LL.B.



Sheila A. Leggett
M.Sc., P.Biol, P.Ag.

Appendix A

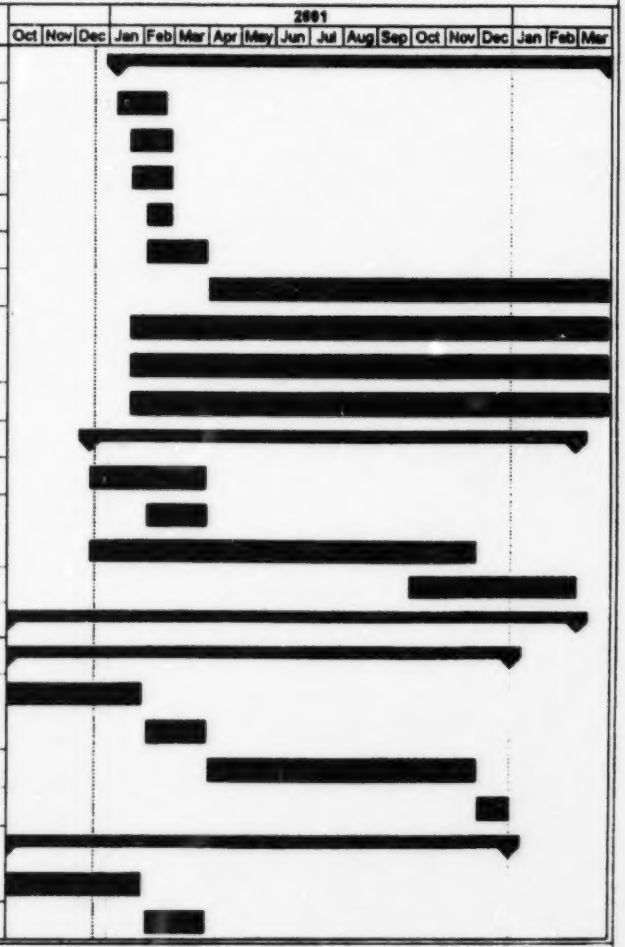
Proposed Integrated Schedule Provided by

Alberta Environment and

Alberta Infrastructure

Highwood Management Plan
Integrated Schedule
12/13/2000

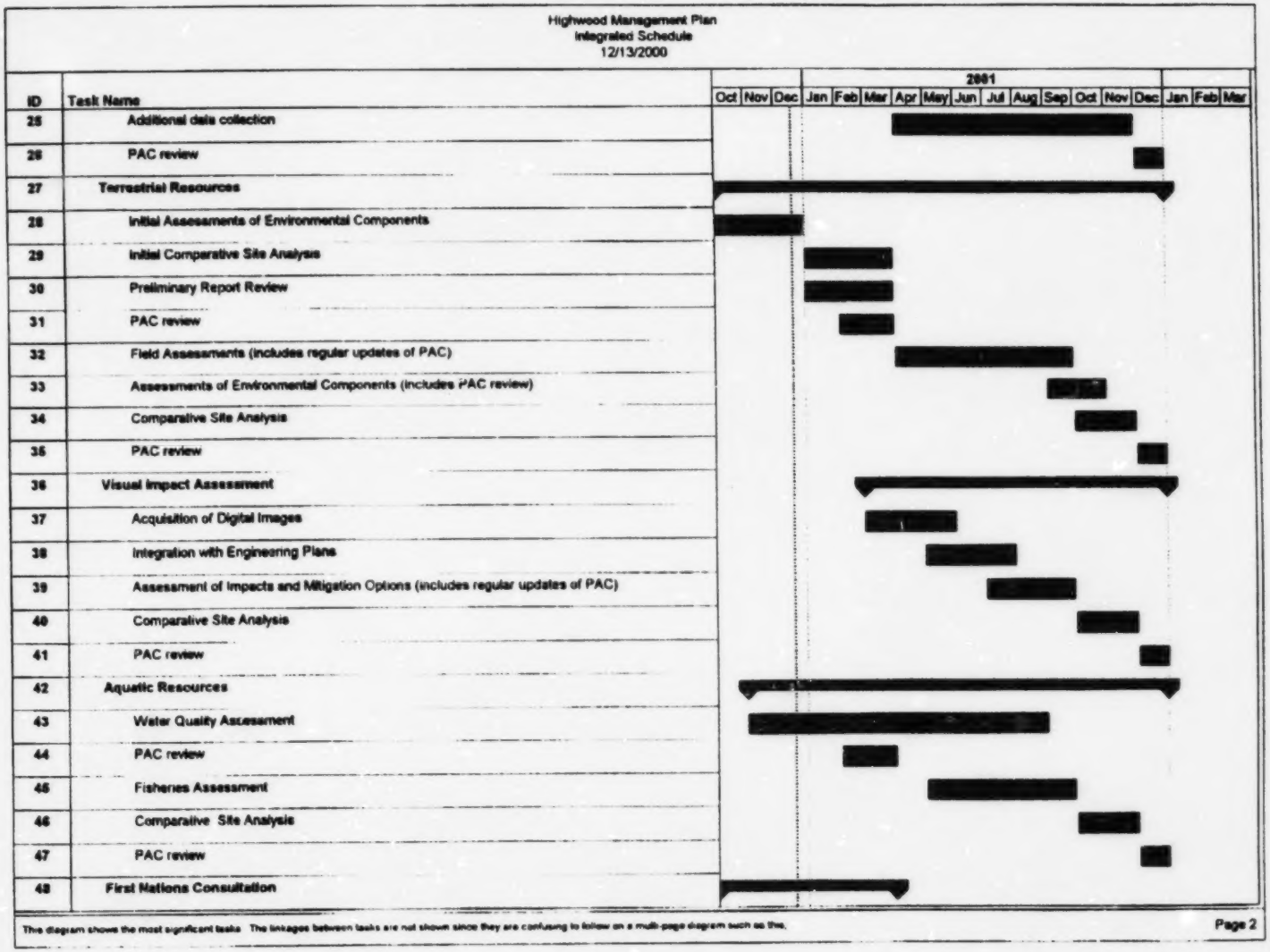
ID	Task Name
1	**Public Involvement (subject to review by PAC)**
2	Formation of PAC (includes objectives and operating guidelines)
3	Review of PAC issues
4	Review of PAC information needs
5	Initial PAC assessment of water supply/demand and water quality
6	Scoping of storage and non-storage options (See Tasks 5, 12, 18, 23, 29, 43, 51, 56, 75.)
7	Development of sustainable water management scenario (water supply/demand and water quality)
8	PAC meetings, reviews, and updates (See below.)
9	Ongoing provision of information to PAC and public
10	Newsletters, open houses, etc. (as required)
11	**Non-Storage Options**
12	Scoping
13	PAC review
14	Data Collection (includes regular updates of PAC)
15	Assessment (includes PAC review)
16	**Storage Site Assessment**
17	**Engineering Site Assessment**
18	Compilation of existing information
19	PAC review
20	On-site investigations (as required)
21	PAC review
22	**Social and Economic Analysis**
23	Compilation of existing information
24	PAC review



This diagram shows the most significant tasks. The linkages between tasks are not shown since they are confusing to follow on a multi-page diagram such as this.

Page 1

Highwood Management Plan
Integrated Schedule
12/13/2000

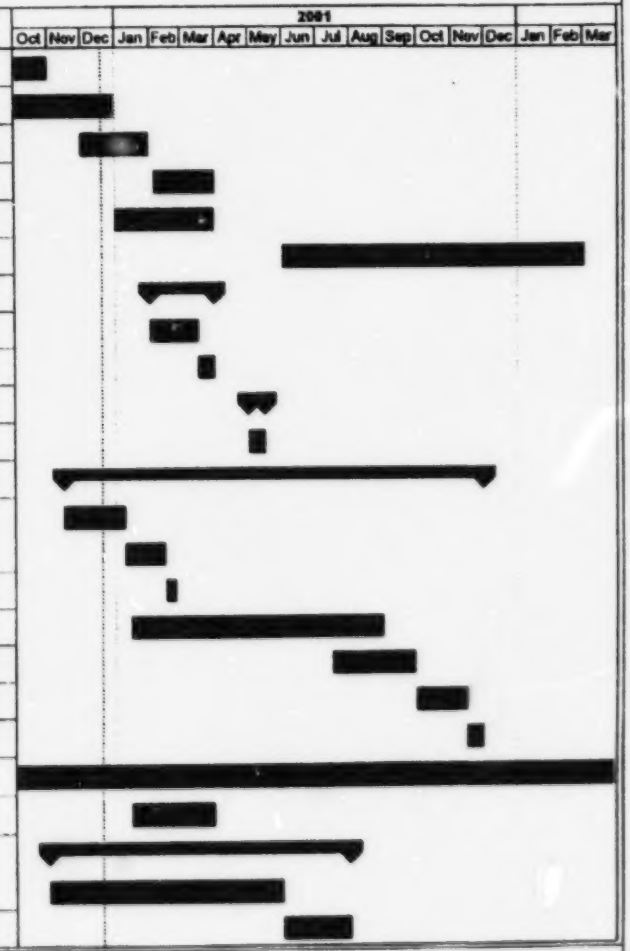

ID
Task Name
2001
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
25 Additional data collection
26 PAC review
27 Terrestrial Resources
28 Initial Assessments of Environmental Components
29 Initial Comparative Site Analysis
30 Preliminary Report Review
31 PAC review
32 Field Assessments (includes regular updates of PAC)
33 Assessments of Environmental Components (includes PAC review)
34 Comparative Site Analysis
35 PAC review
36 Visual Impact Assessment
37 Acquisition of Digital Images
38 Integration with Engineering Plans
39 Assessment of Impacts and Mitigation Options (includes regular updates of PAC)
40 Comparative Site Analysis
41 PAC review
42 Aquatic Resources
43 Water Quality Assessment
44 PAC review
45 Fisheries Assessment
46 Comparative Site Analysis
47 PAC review
48 First Nations Consultation

This diagram shows the most significant tasks. The linkages between tasks are not shown since they are confusing to follow on a multi-page diagram such as this.

Page 2

Highwood Management Plan
Integrated Schedule
12/13/2000

ID	Task Name
49	Site Reconnaissance
50	Issue Identification, Data Gathering
51	Comparative Site Assessment
52	PAC review
53	Mapping and Reporting (includes PAC review)
54	**Storage Site Assessment: Consolidation and Report Preparation (includes PAC review)**
55	**Future Development**
56	PAC review of consumptive demand forecasts
57	Revise consumptive demand forecasts (if required)
58	**IFN: Upper Little Bow & Mosquito Creek**
59	Re-examine need for IFN (PAC)
60	**Little Bow River Reservoir Water Quality Protection Plan**
61	Draft outline
62	PAC review
63	Finalize outline
64	Analyze water quality monitoring results and prepare report
65	Draft water quality protection plan
66	PAC review
67	Finalize water quality protection plan
68	**Frank Lake Water Quality Mitigation Plan (includes regular PAC updates and review)**
69	**Temperature Analysis (includes PAC review)**
70	**Highwood River IFN**
71	Highwood River IFN Draft Report (includes regular updates of PAC)
72	Highwood River IFN Public Review and Finalization

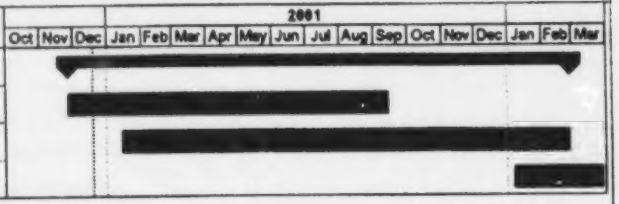


This diagram shows the most significant tasks. The linkages between tasks are not shown since they are confusing to follow on a multi-page diagram such as this.

Page 3

Highwood Management Plan
Integrated Schedule
12/13/2000

ID	Task Name
73	**Water Resources Management Model (WRMM)**
74	Updating (as required)
75	Scenarios (includes ongoing PAC review and development of scenarios)
76	**Revised Diversion Plan (includes PAC review(s))**



This diagram shows the most significant tasks. The linkages between tasks are not shown since they are confusing to follow on a multi-page diagram such as this.